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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Thomas Hopf

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EXAMINER

MCCALL, ERIC SCOTT

ART UNIT

PAPER NUMBER

2855

MAIL DATE

DELIVERY MODE

04/08/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/269,148	Applicant(s) HOPF ET AL.	
	Examiner Eric S. McCall	Art Unit 2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

METHOD FOR THE DETERMINATION OF
COMBUSTION MISFIRES

FINAL OFFICE ACTION

This action is in response to the Applicant's amendment dated Oct. 17, 2008.

CLAIMS

35 U.S.C. § 112

In response to the Applicant's comments and amendments, the rejection of claims 1-7 under 35 U.S.C. 112, second paragraph, as set forth in the previous office action (July 17, 2008) has been overcome. However, based on the amendments, the following now applies:

Claims 8-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention because:

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Claim 8 fails to further limit claim 1 since claim 1 does not set forth a vehicle as referenced in claim 8.

Claim 9 sets forth that a first compression time and a first expansion time come from a first cylinder and that a successive second compression time and a successive second expansion time come from a second cylinder. As such, claim 9 contradicts parent claim 1. Claim 1 sets forth that, although more than one cylinder may be involved, the successive two compression times and the successive two expansion times come from the same cylinder.

Claim 10, lines 4 & 5: the phrase “the difference” is indefinite because a difference has not been previously set forth in the claim.

35 U.S.C. § 102

In view of the Applicant’s amendments, the rejection of claims 1-7 under 35 U.S.C. 102(b) over Denz as set forth in the said previous office action has been overcome.

35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

In view of the Applicant's amendments, claims 1-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Denz (5,144,927).

With respect to independent claims 1 and 10, Denz sets forth a method for the determination of combustion misfires in an internal combustion engine having a plurality of cylinders, comprising the steps of:

measuring at least two successive compression times and expansion times for at least one cylinder (col. 4, lines 59+); and

forming the difference between the compression times and expansion times, wherein this difference provides a measure of a combustion misfire (col. 5, lines 8+).

Denz fails to determine a difference between compression times and a difference between expansion times for said at least one cylinder for use in the above forming the difference step.

However, it would have been obvious to one having ordinary skill in the art armed with said teaching to form differences between the compression times and to form differences between the expansion times so that the differences are compared in order to measure a combustion misfire.

The motivation being that Denz continuously measures the compression times and the expansion times with the continuous comparisons thereof. A basic step in the comparison of two continuously measured values is to take the average of one variable and to compare it to the average of the other variable. By doing this, a more consistent and reliable result is obtained.

As such, when the average of one variable is taken and compared to the average of the other variable, a difference between the values of the one variable is formed (ie. forming the differences between compression times) and a difference between the values of the other variable is formed (ie. forming the differences between expansion times).

In short, it would have been in the realm of one having ordinary skill in the art, and thus obvious to one having ordinary skill in the art, armed with the Denz teaching to compare the average value of compression times to the average value of expansion times in order to determine a misfire.

With respect to claim 2, Denz sets forth that the method is carried out as function of operating parameters of the engine as claimed (see compression angular segments and expansion angular segments).

With respect to claim 3, Denz sets forth that the method is carried out for each cylinder of the engine (col. 4, lines 40-58).

With respect to claim 4, Denz inherently sets forth that after the detection of a predefined number of combustion misfires (ie. one misfire), a fault signal is generated and emitted.

With respect to claim 5, Denz sets forth that a threshold value for the measure of a combustion misfire is formed as a function of a parameter of the internal combustion engine and

that no fault signal is generated based on the comparison between the result and the threshold value (col. 6, lines 4-8).

With respect to claim 6, Denz sets forth that the method is not carried out in the case of a deviation from permissible value ranges for operating parameters of the engine (col. 6, lines 4+).

With respect to claims 7 and 8, Denz sets forth that the taught method is used in an on-board diagnostic device for an engine in a passenger vehicle.

The Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). The Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric S. McCall whose telephone number is (571) 272-2183.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Eric S. McCall/
Primary Examiner
Art Unit 2855